

REMARKS

Introduction:

Claims 1-5, 8-10, 33-37, 40-42, 55-59, and 62-66 were pending in the patent application when an Office Action mailed June 17, 2004 rejected all pending Claims.

By way of this Amendment, and without introducing new matter, the Applicants have amended the Figures, Specification, and the Claims. Applicants respectfully request entry of the amendment, reconsideration, and allowance of all claims pending in this patent application.

Interview:

On September 20, 2005, an interview was conducted by the Examiner by telephone with the undersigned counsel. The amendment to Claim 1, as shown above had been faxed to the Examiner. The discussion concerned the added flight condition elements to Claim 1 and art cited by the Examiner. No agreement was reached with regard to Claim 1.

Rejection of Claims 1-5, 8-10, 33-37, 40-42, 55-59, and 62-66 under 35 U.S.C. § 103(a):

The Office Action rejected Claims 1-5, 8-10, 33-37, 40-42, 55-59, and 62-66 as being unpatentable over Delaney in view of <http://www.fanwars.plan/pic/X-wing.jpg> and Brown.

The current amendments claim a first non-planar airfoil attachable to an aircraft near the first root, a second non-planar airfoil attachable to the aircraft near the first root; and a movable connection being arranged to move at least one of the first airfoil and the second airfoil from a first position with the first tip and second tip near each other *during a flight condition other than takeoff and landing* to a second position with the first tip and second tip spaced apart from each other, *during at least one of takeoff and landing*.

Take off and landing are often the most critical design conditions for aircraft. During takeoff and landing, especially when carrying payloads, the aircraft often is flying as close as possible to its maximum coefficient of lift (C_L), and airflow over the lifting surfaces are most

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susceptible to separation from the lifting surfaces. The aircraft at the same time must clear the ground surface other than at its contact points at its landing gear, even as it departs and approaches the landing surface with its lifting surfaces at a high angle of attack.

Delaney (U.S. Des. 345,396) is a design patent for the "X-wing" amusement space vehicle of the Star Wars movies. The "wings" or weapons carriers of the space vehicle are do not teach or suggest any airfoil function, morphing function, *nor flight conditions*.

[Http://www.fanwars.plan/pic/X-wing.jpg](http://www.fanwars.plan/pic/X-wing.jpg) (herein "Fanwars") shows extension and closing of a "S-Foil Wing Assembly", "extended for combat, closed for cruising speed". Fanwars in combination with Delaney and the Star Wars movies taught bringing the weapons carriers *together* during takeoff and landing. Clearance for the landing gear would have been problematic with the weapons carrier 'wings' in the 'extended for combat.' Fanwars in combination with Delaney and the Star Wars movies further taught a *vertical* take off space vehicle where aerodynamic lift from lifting surfaces is not present. Fanwars explicitly teaches away from the subject invention at the critical flight conditions reflected by the present application. [MPEP §§ 2141.02; 2143.01.]

Brown (U.S. 5,671,898) shows and teaches non-planar airfoils. Brown does not teach or suggest combining airfoils together. Brown does not suggest in any way linking with the weapons carrier system of Delaney and Fanwars, where the carriers are *combined* during takeoff and landing. In Brown, the tips of the wings are also closer together at take off and landing than a cruise, contrary to the claimed elements herein.

Applicant respectfully submits that a *prima facie* case of obviousness has not been established because the combinations of cited references do not teach or suggest the claimed invention. The flight conditions claimed herein are a first position with the first tip and second tip near each other *during a flight condition other than takeoff and landing* to a second position with the first tip and second tip spaced apart from each other, *during at least one of takeoff and landing*.

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The relative simplicity of the present invention is particularly subject to 20-20 hindsight during considerations of obviousness: "The way to avoid the "attraction of a hindsight-base obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. ... *Close adherence to this methodology is especially important in the case of less technologically complex inventions*, where the very ease with which the invention can be understood may prompt one to fall victim to the insidious effect of a hindsight syndrome where that which only the inventor taught is used against its teacher." *In re Dembiczaik*, 173 F.3d 994, 999 (Fed. Cir. 1999), in part citing *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998).

Stacking of elements from different sources is not sufficient, the cited art must teach or suggest the present invention. As noted, the cited art teaches away from the present invention, and thus should not be combined for an obviousness rejection. MPEP §§ 2141.02; 2143.01.

As a result, a *prima facie* case of obviousness has not been established, and Claims 1, 33, and 55, as amended, are patentable over the combinations of cited references. The balance of the claims depend from allowable claims 1, 33, and 55 and are therefore allowable for the same reasons as their respective base claims, as well as the additional limitations in those claims.

Applicant respectfully notes again that secondary factors have been presented that further rebut obviousness. In the intervening period from Star Wars, there have been no developments or publications concerning the morphing airfoil systems and methods of the present invention. As noted in the accompanying Declaration of Dr. Pitt, there has been a long-felt need for increased ranges of combined low speed and high speed performance in aircraft, as well as for higher stall angles, but no device as presented herein has been developed. This invention was unexpectedly successful in deriving increased ranges of lift and increased stall angles. MPEP 716.01-.04. Under these established circumstances, an *obviousness* rejection is not properly derived from Delaney and Fan Wars the present invention.

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CONCLUSION

For the foregoing reasons, applicant respectfully requests reconsideration and withdrawal of the rejections of claims 1-5, 8-10, 33-37, 40-42, 55-59, and 62-66. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to call the undersigned at his convenience.

Respectfully submitted,

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MAIL CERTIFICATE

I hereby certify that this communication is being deposited with the United States Postal Service via first class mail under 37 C.F.R. § 1.08 on the date indicated below addressed to: MAIL STOP RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

October 17, 2025
Date of Deposit

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